The World Area Forecast System (WAFS) Internet File Service (WIFS) Users Guide

By

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Document Change History

Date	Author	Version	Description[1]
02/24/10	Solomon	1.0	Initial draft release.
03/26/10	Solomon	1.1	Incorporated user feedback including: new document change history section, correction to Table 2 GRIB/GRIB2 description, additional descriptions where necessary, section heading changes, and more.
03/30/10	Solomon	1.2	Based on feedback from reviewers, made some changes to the User Authentication fields.
04/05/10	Solomon	1.2	Based on feedback from reviewers, added "WAFC Washington" wording to title, footer, and the Introduction.
04/26/10	Solomon	1.2	Based on feedback from reviewers: (1) section 2 was renamed "Service Overview and Responsibilities of U.S. Government Agencies", (2) section 3 was renamed "Data Retrieval Process", (3) backup information was added to section 4, (4) section 7 "Responsibilities of U.S. Government Agencies" was renamed "WIFS Customer Support" and is now section 8, and (5) more information was added to the WIFS Customer Support section including information on a trouble ticket system.

[1] Minor corrections and cosmetic changes are not listed.

Table of Contents

1. Introduction

The World Area Forecast System (WAFS) Internet File Service (WIFS) is provided by the Washington World Area Forecast Center (WAFC). The Washington WAFC is operated by the United States National Weather Service (NWS) Aviation Weather Center (AWC) for the purpose of providing WAFS products and related services as defined in International Civil Aviation Organization (ICAO) Annex 3. The WIFS is in compliance with Federal Aviation Administration (FAA) Advisory Circular 00-62 *Internet Communications of Aviation Weather and NOTAMS* dated November 1, 2002, and is recognized by ICAO with Amendment 75 as a means to access aviation weather data in support of flight planning. The WIFS is an integral part of the AWC's Consolidated Aviation Web Services (CAWS) system.

2. Service Overview and Responsibilities of U.S. Government Agencies

The WIFS is a real-time data repository integrated within the CAWS system and accessible over the Internet to authorized users. For the purposes of meeting the ICAO Document 9855 (*Guidelines on the Use of the Public Internet for Aeronautical Applications*) and the FAA's Advisory Circular 00-62 for the Qualified Internet Communications Provider (QICP) requirement, there are three geographically remote web farms that house the WIFS data. WIFS is available for use 24x7. Note that WIFS is an Internet file server. WIFS does not provide a "push" facility; the user will have to collect ("pull") data by initiating an HTTPS session over the Internet.

The FAA, as the U.S. Meteorological Authority, identifies the requirements for the products and services provided by the Washington WAFC. The National Oceanic and Atmospheric Administration (NOAA) NWS is the provider of the WAFS products and has responsibility for the management and operation of the WIFS.

3. Data Retrieval Process

To help evenly distribute the load amongst the three web farms, each user state is asked to access data from their designated *primary* web farm. The primary web farm assigned for each user depends on the first letter in the state name based on the U.S. English spelling. In the event the primary farm is inaccessible, users should employ a round robin approach, attempting to retrieve the data from the other two farms. The web farm URLs and primary web farm assignments are shown in Table 1.

Table 1 WIFS Primary URL for HTTPS Access

Web Farm	First Letter of State[2]	Base WIFS URL[1]
NWS National Headquarters	A, B, C, D, E, F, G, H, I	https://hq.aviationweather.gov/wifs/data
NWS Southern Region Headquarters	J, K, L, M, N, O, P, Q, R, S	https://srh.aviationweather.gov/wifs/data
NWS Central Region Headquarters	T, U, V, W, X, Y, Z	https://crh.aviationweather.gov/wifs/data

1   Specific data are stored in separate subdirectories. See Table 2.
2   State name spelling in U.S. English.

Users will require a user ID and password to access the WIFS via the Internet. Recommended Internet connection is a minimum of 64 kbps, bursting to 512 kbps. Once the data is retrieved from the WIFS, users require application software that is capable of ingesting and displaying the WAFS data. Additionally, the software needs to be able to access the WAFS data directly from the appropriate WIFS URL (as indicated in Table 1). A list of WAFS workstation providers can be found at http://www.metoffice.gov.uk/sadis/about/manufacturers_full.html. Users should contact specific workstation providers for cost and availability.

Per QICP requirements, log files will be kept monitoring usage of the WIFS. Log files will contain the user's ID and what data they accessed. Users are encouraged to use the Gnu Wget utility to access the data. Gnu Wget will be described in more detail later in the document.

4. User Authorization

WIFS is available to all current International Satellite Communications System (ISCS) users, and future users who's primary WAFS provider is designated as the Washington WAFC.

WIFS will not be available to current SADIS (2G or FTP) users, or future users whose primary WAFS provider is designated as the London WAFC. However, SADIS (2G or FTP) users can request access to WIFS as a back-up means to obtain WAFS products when the SADIS FTP is in degraded or failure mode.

SADIS will not be available to current ISCS and WIFS users, or future users whose primary WAFS provider is designated as Washington WAFC as their primary means of obtaining WAFS products. However, ISCS or WIFS users can request access to SADIS as a back-up means to obtain WAFS products

when WIFS is in degraded or failure mode.

4.1 WIFS Access for Current ISCS Users and Future Eligible Users

Requests for authorization to access WIFS must be sent directly to Mr. Steve Albersheim at the Washington WAFC (Steve.Albersheim@faa.gov, +1(202) 385-7185). Every user request must include the following information:

- **ICAO Location Indicator**
- **Point of Contact First Name**
- **Point of Contact Last Name**
- **Point of Contact Phone Number**
- **Point of Contact Email Address**
- **Primary WAFC (US or UK)**
- **Physical Address of WAFS Workstation**
- **WAFS Workstation Operating System**
- **WAFS Workstation Vendor**

Additionally, potential future WIFS users that are not current ISCS users must be pre-approved for WIFS access by their State Meteorological Authority before access will be provided. This approval must be included with their WIFS access request. Once the WIFS approving official authorizes access, the AWC will issue a user name and password which will be required to access the data. Questions regarding WIFS registration can be sent to wifs.reg@noaa.gov or call the WIFS Registrar at +1(816) 584-7207.

4.2 SADIS Access for Current WIFS Users and Future Eligible Users

Access to SADIS for back-up purposes will be limited to authorized ISCS and WIFS users. Authorized ISCS and WIFS users must request SADIS back-up access through the designated WIFS approving authority at the Washington WAFC. WIFS officials will coordinate access with the appropriate SADIS authorizing official at the London WAFC for all ISCS and WIFS users who explicitly request to have SADIS back-up service. ISCS and WIFS users should not contact the SADIS authorizing official at the London WAFC directly. Additionally, ISCS and WIFS users should also follow-up with the appropriate WIFS authorizing official for a status of their SADIS back-up user request. Once approved, SADIS officials will issue the requesting WIFS user with a user ID and password directly. SADIS user ID and password information will not route through WIFS officials. Each WIFS user requires a unique SADIS user ID and password. Users can not use their WIFS user ID and password to access SADIS. Additionally, any WIFS user authorized to access SADIS as a back-up should understand that if their WIFS account is suspended for any reason, they will also be suspended from using SADIS as a back-up.

4.3 WIFS Access for Current SADIS (2G and FTP) Users and Future Eligible Users

Requests to access WIFS as a back-up option when the SADIS FTP service is in degraded or failure mode must be sent directly to the appropriate authorized SADIS approving official. SADIS officials will coordinate access with the appropriate WIFS authorizing official at the Washington WAFC for all SADIS users who explicitly request to have WIFS back-up service. SADIS users should not contact the WIFS authorizing official at the Washington WAFC directly. Additionally, SADIS users should also follow-up with the appropriate SADIS authorizing official for a status of their WIFS back-up user request. Once approved, WIFS officials will issue the requesting SADIS user with a user ID and password directly. WIFS user ID and password information will not route through SADIS officials. Each SADIS user requires a unique WIFS user ID and password. Users can not use their SADIS user ID and password to access WIFS. Additionally, any SADIS user authorized to access WIFS as a back-up should understand that if their SADIS account is suspended for any reason, they will also be suspended from using WIFS as a back-up.

5. Directory Structure

The WIFS directory structure, with respect to the base URL (e.g., https://srh.aviationweather.gov/wifs/data), is provided below.

```
/BUFR
/GRIB
/GRIB2
        /KWBC
                /trial_forecasts
                        /ice
                        /cb
                        /cat
                        /incldturb
        /EGRR
                /trial_forecasts
                        /ice
                        /cb
                        /cat
                        /incldturb

/OPMET_HOURLY
/OPMET_MINUTE
/OPMET_ROLLING
/ISCS_ADMIN_MSG
/PNG
```

Table 2 lists the subdirectory name, the file format, and a description of the data in the directory. The detailed description of each product including file

format is provided later in the document.

Table 2 WIFS Data Description

WIFS Subdirectory[1]	File Format	Data Description
OPMET-MINUTE	ASCII	Files containing one minute's worth of METARs/SPECIs, TAFs, SIGMETs, Advisories, Air Reports, NOTAMs, ASHTAMs
OPMET-HOURLY	ASCII	Files containing one hour's worth of METARs/SPECIs, TAFs, SIGMETs, Advisories, Air Reports, NOTAMs, ASHTAMs
OPMET-ROLLING	ASCII	5/30/60 minute window files containing METARs/SPECIs, TAFs, SIGMETs, Advisories, Air Reports, NOTAMs, ASHTAMs
GRIB	GRIB Edition 1	Model Forecast Grids
GRIB2[2]	GRIB Edition 2	Model Forecast Grids
BUFR	**B**inary **U**niversal **F**orm for the **R**epresentation of meteorological data (BUFR)	Significant Weather
PNG	Portable Network Graphics (PNG)	Significant Weather Images
ISCS_ADMIN_MSG	ASCII	Administrative Notices

[1] The subdirectory name should be appended to the base URL shown in Table 1.

[2] The GRIB2 directory will contain KWBC and EGRR subdirectories indicating the data are from the Washington WAFC or the London WAFC. Those subdirectories will contain concatenated files corresponding to the valid time for the data they contain. There will also be separate subdirectories under KWBC and EGRR containing trial forecast data. See Section 4 Directory Structure for details.

6. File Formats

All files follow WMO standards. Category-specific format details are shown below.

a) Concatenated Data Files (OPMET-MINUTE, OPMET-ROLLING, OPMET-HOURLY)

OPMET-MINUTE file naming convention:
YYYYMMDD_hhmm_OPMET

OPMET-ROLLING file naming convention:
Five minute file = "M05_OPMET"
Thirty minute file = "M30_OPMET"
Sixty minute file = "M60_OPMET"

Concatenated file format:

^C^A^M
000^M
Bulletin Header
Actual Data

The first line of each concatenation begins with a **^C** character ***except the very first line*** in a concatenated file which does not have the **^C** character but follows the rest of the format detailed above. The example below contains the first three concatenated files from an OPMET file.

^A^M
000^M
SACN94 CWAO 162045^M
WSK SA 2045 AUTO8 M M M M/07/05/0000/M/M M 52MM=^M
^M
^M
^C^A^M
000^M
SPCN48 CWAO 162045^M
SPECI CYHA 162045Z 32015KT 3/8SM –SG DRSN –FZDZ OVC006
RMK ST8=^M
^M
^M
^C^A^M
000^M
SPCN43 CWAO 162047^M
SPECI CYBU 162047Z AUTO 18002KT 1SM –SN FEW002 BKN010
BKN025 OVC069^M
M05/M06 A3005=^M
^M
^M

b) **GRIB**

File naming convention:
YYYYMMDD_hhmm_TTAAii_CCCC.grib

For details on the format of the GRIB products see *WMO Publication FM92 GRIB Edition 1.* GRIB files are retained in the WIFS system for 8 hours.

c) GRIB2

File naming convention:
YYYYMMDD_hhmm_TTAAii_CCCC.grib2

For details on the format of the GRIB2 products see *WMO Publication FM92 GRIB Edition 2*. GRIB2 files are retained in the WIFS system for 8 hours.

d) BUFR

File naming convention:
YYYYMMDD_HHMM_TTAAii_CCCC.bufr

For details on the format of the BUFR products see *WMO Publication FM94 BUFR*. BUFR files are maintained in the WIFS system for 36 hours.

e) ISCS_ADMIN_MSG

File naming convention:
YYYYMMDD_HHMM_TTAAii_CCCC.adm

Administrative messages with the following WMO headers are available on the WIFS:

NOUS*ii CCCC*

where *ii* is a two digit numeric string (e.g., 41) and *CCCC* is the ICAO location identifier (e.g., KWBC).

Administrative messages are retained on WIFS for 36 hours.

f) PNG

File naming convention:
YYYYMMDD_HHMM_TTAAii_CCCC.png

Portable Network Graphic (PNG) images of the Significant Weather ICAO area charts are stored in the PNG directory of the WIFS file system. The following WMO messages are retained in the PNG directory for 36 hours.

Table 3 Significant Weather PNG files

WMO Header	Area
PGEE05 KKCI	ICAO A
PGIE05 KKCI	ICAO B1
PGGE05 KKCI	ICAO F
PGAE05 KKCI	ICAO H
PGBE05 KKCI	ICAO I
PGJE05 KKCI	ICAO J
PGDE29 KKCI	ICAO M
PGNE14 KKCI	North Atlantic Ocean Region

For more detailed information on the PNG format, see the W3C Portable Network Graphics (PNG) Specification (Second Edition) (http://www.w3.org/TR/PNG).

7. Web Site

To access the WIFS web site, open the following link in your web browser: http://aviationweather.gov/wifs. The WIFS web pages contain user documentation, instructions for reporting problems, contact information, important advisory postings, and more.

8. WIFS Customer Support

The WIFS Customer Support Desk is available to address operational issues Monday through Friday between the hours of 13:00 to 22:00 UTC. To contact the WIFS Customer Support Desk use the following e-mail address and phone number:

E-mail: wifs.admin@noaa.gov
Phone: 1(816) 584-7200

If a user experiences operational issues outside of normal WIFS Customer Support Desk hours, they can generally expect a response within 3 hours after the Customer Support Desk re-opens. For each operational issue identified, a trouble ticket will be generated and users will be sent an e-mail with the trouble ticket number. Users should refer to this ticket number in all follow-up correspondence with the WIFS Customer Support Desk.

9. User Troubleshooting Guidelines

Symptom	Probable Cause	Actions to Take
Data out of date, cannot be retrieved, or is not being properly displayed on the missing on the workstation	WAFS data retrieve process failed	Test the internet connection[1]
		Check the data retrieve log file for errors[2]
		Contact the WAFS workstation support team
	Data on WIFS is out of date	Test the internet connection[1]
		Browse to the WIFS online file list and check to see if data is up to date[3]
		If data is out of date send an email to wifs.admin@noaa.gov and contact the NWSTG to report the problem.[4]
	There is a WIFS data ingest problem	Check the Advisories page for new advisories pertaining to data outages.
		If data is out of date send an email to wifs.admin@noaa.gov and contact the NWSTG to report the problem.[4]

1. To test your internet connection, try to "ping" your primary WIFS URL (i.e., "ping http://srh.aviationweather.gov/wifs"). If the ping is successful you have a working internet connection. If it is not, contact your system administrator or your Internet Service Provider for assistance.
2. If you don't know where this file is or how to access it, contact the WAFS Workstation Support Team.
3. In your browser type in the URL of your primary WIFS location (i.e., http://srh.aviationweather.gov/wifs). Click on the appropriate category and find the data you are looking for. Take note of the file name with the latest date/time.
4. The National Weather Service Telecommunications Gateway (NWSTG) Helpdesk phone number is (301) 713-0902.